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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/660,566 | 09/12/2000 | William G. Deitz | SJ09-2000-0087US1 | 6955 |

7590 07/27/2004

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EXAMINER

LEE, CHI HO A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2663

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/660,566 | DEITZ ET AL. | |
| | Examiner | Art Unit | |
| | Andrew Lee | 2663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 8-11, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gertner U.S. Patent Number 6,549,988 in view of Chang et al U.S. Patent Number 6,226,111.

Re Claims 1, 18, fig. 2B teaches FCAL loops (first and second loop) coupled to Fiber Channel Switch (a switch) (See col. 5, lines 33-38), wherein Host 111 & 112 (first and second host server interface terminals) are coupled to the loops.

Gertner fails to explicitly teach that the switch performs a loop healing upon detection of a failure on a loop.

However, Chang et al teaches in fig. 7, a switching node 50 performing self-healing due to failure to one the coupled loops (See col. 11, lines 1-20). One skilled in the art would have been motivated by Chang to modify the switch of Gertner to include the loop healing function for reliability. Therefore, it would have been obvious to one ordinary skilled incorporate the teaching of Chang et al into the teaching of Gertner.

Re Claims 2, 9, refer to Claim 1, wherein fig. 2B teaches data storage drives 161, 171 (first and second controller terminal).

Re Claims 8, 17, Gertner in view of Chang fails to explicitly teach "a bandwidth is ...disconnected is approx. twice the bandwidth...first and second loops coupled together". One skilled in the art would have motivated to adjust the bandwidth of the hub twice the bandwidth with the first and second loops coupled together to compensate for the failed loop. Hence, the first and second loop is disconnected, more bandwidth is required by the Hub to maintain the required throughput of loops coupled together.

Re Claims 10, 11, Gertner in view of Chang fails to explicitly teach the storage controllers comprise RAID storage controllers. However, Applicant admits in page 1 of specification that RAID system greatly improves storage system reliability. Hence, one skilled in the art would have been motivated to modify the storage device in Gertner with the RAID controller for storage reliability.

3. Claims 3, 6, 12, 15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Gertner U.S. Patent Number 6,549,988 in view of Chang et al U.S. Patent Number 6,226,111 as applied to Claim 2 above and further in view of Baldwin et al U.S. Patent Number 6,101,166.

Re Claims 3, 6, 12, 15, As Gertner in view of Chang teaches storage devices coupled to the FCAL loops; Gertner in view of Chang fails to explicitly teach, "a first loop resiliency circuit coupled between the first loop and the first storage controller terminal...a second loop resiliency circuit....".

However, Baldwin teaches in fig. 3, a hub port (a first loop resiliency circuit) coupled between the Node port 314 (the first storage controller terminal) to the FCAL loop 326 (loop) wherein when the hub port detects loop failure (See col. 7, lines 23-68). Fig. 2B teaches four storage devices 161, 171 coupled (second, third, & fourth resiliency circuit) to the FCAL loops, the hub port of Baldwin is coupled respectively. One skilled in the art would have been motivated to Baldwin to include the hub port circuit to each of the storage devices coupled to the FCAL loop for reliability. Therefore, it would have been obvious to one ordinary skilled to incorporate the teaching of Baldwin into the teaching of Gertner in view of Chang.

4. Claims 4, 5, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gertner U.S. Patent Number 6,549,988 in view of Chang et al U.S. Patent Number 6,226,111 in view of Baldwin et al U.S. Patent Number 6,101,166 as applied to Claim 3 above and further in view of Nakayama et al U.S. Patent Number 6,725,293.

Re Claims 4, 5, 13, 14, Fig. 3 of Baldwin teaches the Loop recovery 310 (a port bypass circuit) and LIP detect 320 (a signal detection unit; first logic module) to detect failure to a loop but fails to explicitly teach "detecting a failure of a controller coupled to the signal detecting unit.

However, Nakayama teaches fig. 1, a plurality of Controller processors 114-117 wherein each controller processor monitor each other operational status and in case of a failure to a processor, takes over the operation of the failed

processor (See col. 6, lines 13-58). One skilled in the art would have been motivated by Nakayama to monitor for the failed controller for reliability.

5. Claims 7, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gertner U.S. Patent Number 6,549,988 in view of Chang et al U.S. Patent Number 6,226,111 as applied to Claim 2 above and further in view of Gilliland et al U.S. Patent Number 5,966,487.

Re Claims 7, 16, Gertner in view of Chang et al fail to explicitly teach that the host interface adaptive hub is a copper fiber channel hub. However, Gilliland et al teaches a MIA standardized copper fiber channel connector for FCAL application. One skilled in the art would have been motivated by Gilliland to modify Gertner in view Chang to include the copper fiber channel adapter of Gilliland to interconnect to convert electrical signal host to optical signal FCAL network.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakayama et al U.S. Patent Number 6,725,293.

Re Claims 19, 20, fig. 1, a plurality of Controller processors 114-117 wherein each controller processor monitor each other operational status and in case of a failure to a processor, another controller (a surviving controller) takes over the operation of the failed processor for coupling plurality of hosts to the loops 125 & 126 (first and second loop) (See col. 6, lines 13-58).

Re Claim 21, wherein the Controller Processor also detects failure at the Host computer.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al U.S. Patent Number 6,725,293.

Re Claim 22, Nakayama et al fails to explicitly teach "a bandwidth is ...disconnected is approx. twice the bandwidth...first and second loops coupled together". One skilled in the art would have motivated to adjust the bandwidth of the hub twice the bandwidth with the first and second loops coupled together to compensate for the failed loop. Hence, the first and second loop is disconnected, more bandwidth is required by the Hub to maintain the required throughput of loops coupled together.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al U.S. Patent Number 6,725,293 in view of Gilliland et al U.S. Patent Number 5,966,487.

Re Claim 23, Nakayama et al fails to explicitly teach that the host interface adaptive hub is a copper fiber channel hub. However, Gilliland et al teaches a MIA standardized copper fiber channel connector for FCAL application. One skilled in the art would have been motivated by Gilliland to modify Nakayama et

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al to include the copper fiber channel adapter of Gilliland to interconnect to convert electrical signal host to optical signal FCAL network.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lee whose telephone number is 703-305-1500. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AI
7/14/04

ANDY LEE
PATENT EXAMINER